

Claims

1. A method of manufacturing a diamond composite body comprising the steps of forming a porous body containing diamond particles and carbon and/or graphite; infiltrating silicon or silicon alloy into the body; and heating the infiltrated body to form carbides by reaction between carbon and/or graphite and the infiltrated silicon or silicon alloy, **characterised by** the further steps of providing a surplus of silicon or silicon alloy in connection with the infiltration step so that a layer of silicon or silicon alloy will cover at least one outer surface of the composite body
2. The method according to claim 1, **characterised by** the further step of machining at least one outer surface covered with silicon or silicon alloy.
3. The method according to claim 1 or 2, **characterised by** machining the at least one outer surface covered with silicon or silicon alloy to a roughness less than Ra 0.01 mm.
4. The method according to claim 1,2 or 3, **characterised by** machining the at least one outer surface covered with silicon or silicon alloy to a flatness of less than 0.1 mm.
5. The method according to any one of claims 1-4, **characterised by** supplying the surplus of silicon or silicon alloy in such an amount that the layer of silicon or silicon alloy covers the at least one outer surface of the composite body with a mean thickness of 0.01-2 mm before machining the layer of silicon or silicone alloy on the at least one outer surface to a thickness of 0-1mm.

6. The method according to any one of claims 1-5, **characterised by** infiltrating a silicon alloy comprising at least one element from the group consisting of metals Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Re, Co, Ni, Cu, Ag, Al and the elements B and Ge.

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7. The method according to any one of claims 1-6, **characterised by** performing the infiltration step in an atmosphere containing reactive atoms or molecules of C or N₂.

10 8. A composite body containing diamond particles (1) bonded to a matrix of silicon carbide (2) or silicon alloy carbide and silicon or a silicon alloy, **characterised in** that at least one outer surface of the body is covered by an outer layer (3) of silicon or silicon alloy.

15 9. The composite body according to claim 8, **characterised in** the at least one outer surface has a flatness of less than 0.1 mm and a surface roughness less than Ra 0.01 mm.

10. The composite body according to claim 8 or 9, **characterised in** that the outer layer on said at least one outer surface has a thickness of 0-1 mm.

20 11. The composite body according to claim 8,9 or 10, **characterised in** that the outermost part of the outer layer on said at least one outer surface includes Si₃N₄.

12. An electronic component comprising a composite body according to any one of claims 8-11.

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